

chronic affections of the joints, muscles and fibrous tissues are greatly benefited except those of tubercular and luetic origin.

Repeatedly has he obtained good results in the treatment of acute chronic gonorrheal arthritis by a combination of inhalation treatment with the injection of radium solution around the affected joints.

THE ECONOMIC VALUE OF THE DECIDUOUS TEETH.*

By M. EVANGELINE JORDON, D. D. S., Los Angeles.

The environment of the American people has entirely changed within the life time of one generation and the connection between the environment and the teeth has not yet forced itself upon the minds of the public. A perfect dental equipment is one of the best gifts to mankind and environment is one of the great destroyers or preservers of the dental equipment. This was recognized when a parallel was drawn between the perfect denture of Sitting Bull who had lived the free life of the plains and had eaten the simple primitive food, and the broken carious teeth of his grandson who had suffered from the conditions of civilization.

Our change of environment has been slow but that it is just as fatal is shown by school examinations in different cities where the number of children needing dental care runs from 75% to as high as 97%.

The value of the teeth with regard to the state, that is, the effect upon the health of society at large and upon the taxes they must pay, is but little realized by the profession and is not even imagined by the laity. In his last report Dr. Ebersole, the chairman of the National Committee on Oral Hygiene, tells us that when the mouths of the school children are put into a healthy condition they can do 20% more work. The lack of such work, he estimates, is an annual loss to the taxpayers of the city of Cleveland of half a million dollars. Cleveland is one city in the United States, and conditions are similar in all communities.

This is only one way in which neglected teeth may increase taxes. The cost of caring for the young criminals might be greatly lessened by keeping the mouths of the poor children in a healthy condition. We should then have fewer young criminals because workers in juvenile courts find carious teeth one of the predisposing causes of viciousness and delinquency. Often these children become honest and upright when their mouths are made healthy. A step farther and the cost of maintaining prisons, courts, and penitentiaries would be lessened if there were fewer criminals growing up to fill them.

Hospitals are a great expense. Those who work in clinics for tuberculous children tell us that such children always have carious teeth. Go into any hospital and examine the mouths of the inmates and you will be satisfied that if their teeth had been kept in repair many of them would not need to be there.

Another heavy item of expense to the taxpayer is in maintaining asylums for the insane which each year are being more crowded. Some of the unhappy people would be well and self supporting if their teeth had been cared for, but now they are a tax upon the people.

And last but saddest of all, when old age is reached many people must be cared for by the state because they were unsuccessful in life. One fifth, or more, of their strength was lost by neglected teeth.

This is needless waste and is largely due to the fact that people think because the deciduous or baby teeth are to be shed that they need no care. Nothing was ever farther from the truth. These teeth are needed for use between the ages of two and twelve and under our present state of civilization every dollar spent in keeping the mouth in perfect health during this period brings better returns in health and strength than three dollars later on.

It was recognized very early in the study of the causes for carious teeth that the child who was raised at the mother's breast had better teeth, better shaped jaws, and was probably freer from adenoids and enlarged tonsils, than the bottle fed baby. It remained for dentists practicing exclusively for children to discover the very serious results that may be traced to bottle feeding. The first of these is the early decay of the teeth and the second is the deforming of the jaws. Many children begin to suffer with carious teeth before the second year. This may usually be traced to the lactic acid action upon the upper incisors of the children who had been fed upon bottle food that is too sweet, such as condensed milk, goat's milk, etc. In these cases a stain appears upon the teeth during the last part of the first year and in a few months these stained areas deepen into cavities often causing the teeth to be broken down to the gums by the middle of the third year. If the child has care the abscess which follows the growth of the cavity and the death of the pulp may be treated and the tooth filled and restored to usefulness.

My records show many such cases of children ranging from eighteen months to two and one half years of age. Each of these children needed besides such treatments several small fillings in other teeth which if neglected would have gone through the same destructive stages of inflammation of the bacteria invaded pulp, its death and supuration, and later alveolar abscess, followed by a necrosed area of the alveolar process surrounding the root.

* Read at a joint session of the Los Angeles County Medical Association and the Los Angeles County Dental Association.

Possibly the busy physicians have overlooked these apparently little trifles without realizing how prevalent and how serious are the dead pulps in children's teeth. An abscess upon the finger is a serious thing but how much more serious it would be considered if its discharge were all carried into the system. Where there is one tooth with an abscess another will soon be in the same condition because mastication upon the approximal and occluding teeth becomes difficult and painful and the destructive bacteria burrow toward the pulps of these teeth with less disturbance from the food.

The blood is laden with pus germs absorbed directly by the tissues surrounding the roots of the teeth and also by the way of the stomach and intestines because the slightest pressure upon the tooth squeezes great drops of creamy pus into the food being prepared for digestion. Each tooth with an abscess reduces the resisting power of the child until when there are five or six or even seven, as one of my little patients of three and one-half years had, great quantities of pus are absorbed daily and very little resistance is made against the poisoning. Many a little grave, yes thousands of little graves hide the victims of septicemia, although the child appeared to succumb to some simple ailment.

The little patient suffering with seven abscesses was brought from a neighboring town and referred to me because the dentists who had examined her found her extreme irritability a hindrance in doing satisfactory work for her relief. In six weeks her teeth were filled, but for several months pus would reappear at some point of the necrosed areas about the roots. These all finally healed and at a recent visit after a year's absence her gums were perfectly healthy and her teeth all in service. A year and a half ago she passed through a serious run of typhoid fever where her physicians say she could not have escaped death had her mouth not been in a perfectly healthy condition.

Generally conditions of this sort are brought to the attention of the physicians first and if they do not recognize them the blame should rest at their door. Some do recognize the danger from the pus and extract the tooth, or teeth, without recognizing the injury they may be doing to the proper occlusion of the permanent set. Never extract a deciduous tooth except for its immediate successor is an axiom in dentistry, and should prevent the early sacrifice of these teeth which may easily be restored to health and usefulness by a few simple treatments.

The prolonged use of the nursing bottle causes the upper arch to grow high and narrow which results in a permanent lengthening of the face and malocclusion of the arches. The upper front teeth may project and prevent the closing of the mouth. In such cases the child may breathe through the mouth and is then subject to inflammation of throat and tonsils. The air passages of the nose become smaller and the growth of adenoids is induced. If the upper teeth are broken off very early the lower jaw, having no support, may sag forward and remain in the protruding position.

Where artificial feeding cannot be avoided the

watchfulness of the mother may do much in the prevention of these troubles. The nose must be kept clean so that there is no obstruction to free breathing. The bottle must be taken from the child as soon as empty and pacifiers must never be used. The mouth must be kept very clean, and as soon as the teeth appear they must be kept free from stain. If the food is sweet, magnesia helps to counteract the acid, and to keep the stomach more healthy.

The deciduous teeth are for use during the time of greatest development of the child, and the shortest lived of these, the incisors, should last for six years. The molars which are replaced by the bicuspid should be in use for eight and ten years and any interference with the usefulness of these teeth interferes with the nutrition and growth of the child. It may not always show in the physical appearance but it always interferes with the nervous system. Children whose teeth have been badly neglected are frequently the victims of a serious breakdown which often becomes most apparent as they approach puberty.

Dentistry like education should be begun in childhood. If prophylactic work is begun before any stains appear upon the teeth and is carried along without interruption there is every reason to believe that there never will be even a roughening of the enamel of a single tooth. The exception to this rule is where the child is a victim of severe malnutrition due to some extreme febrile disorder as the result of scarlet fever, diphtheria, measles, etc., or syphilis, in which case the growth of the teeth may be stopped during the development of the enamel and result in atrophied teeth, those misshapen stunted teeth, so difficult to preserve and so much less useful because of the small surface of occlusion.

The first permanent molar is most often the victim of atrophy and may generally be traced to such a disturbance occurring between birth and the third year. The preservation of the first permanent molar is one of the great problems in dentistry. Erupting in the sixth year it is generally mistaken by the laity for a deciduous tooth. When the mouth is full of caries this tooth often begins to decay before it is fully erupted. When caries reach the pulp before the tenth year it is almost certain to be lost as the roots are not completely formed until nearly four years after eruption.

One of the greatest mistakes made is to think that this most valuable tooth of the second denture can be permanently filled before puberty. I can safely say that fully as many teeth are lost, as saved, when filled with silver amalgam in childhood. Prior to puberty we frequently find an acid saliva depositing the destructive coating of mucus upon the teeth similar to the conditions during the early months of pregnancy. Then the bacteria penetrate between the wall of the filling and the tooth and protected by the filling develop great colonies which undermine the tooth and penetrate the pulp while externally there is no sign until the whole tooth suddenly falls to

pieces like the collapse of a building with a weak foundation.

The teeth like the forests and rivers of the nation are one of our greatest natural resources and should be understood and conserved with equal care, as much of the health and happiness of the nation depends upon their usefulness. Their conservation is one of the simplest and easiest matters when faithfully continued from babyhood to adult life.

Then all fear of dental work is unknown because if as the result of an illness some small cavities do form they are filled before they become sensitive.

Where prophylactic work is practiced children not only lose all fear of the dentist but look forward to their monthly appointments as a pleasant form of entertainment. Prophylactic work being done once a month a constant supervision is kept of the oral hygiene practiced at home and any mistakes in the use, or lack of use, of the brush can be corrected.

Many pregnant women are allowed to suffer with their teeth when the dental work necessary for their relief would be far less injurious to the development of the child than the sleepless nights of pain which quickly sap a woman's strength.

The poisoning from abscessed teeth or pus pockets about the necks of the teeth very seriously hamper the proper development of the child, and such conditions have been instrumental in causing premature delivery.

Prophylactic work for women during pregnancy when begun in the earlier months is doing much to stop the rapid caries common during that time and prevent the incipient pyorrhea alveolaris to which later the mouth of the mother so often falls a victim.

If the fear and the pain of dentistry can be relegated to the past with other plagues and horrors another step upward will be taken in the progress of science and eugenics.

REPORT OF MASTOID CASES WITH SPECIAL REFERENCE TO DIAGNOSIS.

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We all meet with cases in which it is difficult to determine the advisability of an immediate operation. Also we have had patients recover without operation, though they showed many symptoms of a severe mastoiditis.

The two cases I wish to report are of interest mainly from the standpoint of age.

Case No. 1. Captain N., 69 years of age; occupation, sailor.

History: Three weeks prior to being seen had an attack of grippe. One week ago had pain in both ears, which increased in severity. A few days later the left ear began to discharge. Patient came to me April 23, 1909.

Physical examination: General condition poor. Patient pale and looked sick.

Ear examination: Left ear had profuse purulent discharge in canal. Membrana tympani: Perforation at lower segment with pus escaping. Mastoid: Tenderness fairly well marked over antrum and extending to the tip.

Right ear: Membrana tympani bulging in posterior superior quadrant. Mastoid tenderness over the antrum. Myringotomy was performed at this time with the escape of sero-purulent fluid. Deafness in both ears pronounced.

The patient was next seen May 19th, about three and a half weeks later, having been attended in the meantime by his general physician. Shortly after entering the hospital he had facial erysipelas, but at this time there was very little evidence of the rash.

Physical examination: Temperature 99.5° F. Pulse normal. The ears on examination presented very similar conditions: a profuse, thick, purulent discharge coming from the external meati and also from the perforations.

On the left side the membrana tympani was macerated, and there was some prolapse of the superior canal wall. Mastoid tenderness general, but not very acute. Patient could hear only a very loud spoken voice. An examination of aural smears from both sides showed streptococcus infection. Blood count showed a slight increase in the leukocytes, otherwise normal.

Two days later, May 21st, both mastoids were operated upon. On the left side the process was very extensively involved; bone pneumatic and all cells filled with pus and granulations. There was a peri-sinus abscess at knee, involving it for about one-half inch. Here the granulations were quite healthy in appearance, so they were left untouched. There was also an area of bone about three-fourths of an inch in diameter over the middle fossa which was found to be necrotic and removed, exposing the dura at this point. The dura appeared to be somewhat inflamed, though otherwise healthy. There was a thorough exenteration of all the cells done, and the wound packed with gauze.

The right side was also very extensively affected, all the cells being filled with pus and granulations. There was no exposure of dura except a small area of the limb of the sinus.

The patient's recovery was uneventful, hearing being practically normal.

Case No. 2. Mrs. W., 75 years of age; first seen April 18, 1908.

History: No previous ear trouble; general health good. Two weeks previous developed pain in left ear. Had been treated by general physician with ear drops and internal medication with no relief of pain.

Physical examination: Patient was unusually well preserved for one of her age. Membrana tympani grayish in color, bulging postero-superiorly; heard watch on contact. No mastoid tenderness elicited. A myringotomy was performed with the escape of a small amount of pus. Patient was sent home and put to bed. Patient was seen daily for one week, hot antiseptic douching of ear having been kept up during this period. The highest temperature recorded was 99° F. The discharge became very profuse and thick, still no mastoid tenderness. Pain in ear continued. Examination of aural smear showed short chained cocci. Blood examination showed no increase in leukocytes.

On May 1st, twelve days after first seeing patient, an operation was performed.

Operation: Usual T shaped incision made and bone exposed. About three-fourths of an inch posterior to the antrum there was a small perforation of the bony cortex, with a small amount of pus just beginning to escape. The cortex was generally removed, showing a large pneumatic process, with cells completely broken down and filled with pus. Post-sinus, tip, zygomatic and bulbar cells all filled with pus. The bone overlying a large part of the sinus was necrotic and very soft. After a thorough exenteration of all diseased cells, wound was packed with iodoform gauze. Recovery was uneventful except for an iodoform rash, which disappeared in four days.